Performance - 2.4

Antonio Crispino - 40109690

Maira Malhi - 40128269

Nabila Mehreen - 40130897

SIZE OF VOCABULARY: 30449

Emotion Score: 0.38805144919101386

Emotion Classification Report:

precision recall f1-score support

admiration 0.48 0.45 0.47 2141 amusement 0.52 0.29 0.37 1178 0.19 0.39 0.12 1060 anger annoyance 0.17 0.06 0.09 1584 0.13 approval 0.09 2240 0.23 0.30 0.06 caring 0.10 721 confusion 0.35 0.06 0.11 999 curiosity 0.41 0.10 0.17 1188 desire 0.35 0.04 0.07 389 disappointment 0.05 0.38 0.08 965 disapproval 0.27 0.08 0.12 1558 disgust 0.43 0.06 0.10 582 0.62 0.02 0.03 316 embarrassment excitement 0.29 0.03 0.06 586 fear 0.47 0.04 0.08 348 gratitude 0.72 0.67 0.70 1360 grief 0.00 0.00 0.00 78 joy 0.38 0.12 0.18 897 love 0.62 0.34 0.44 1014 0.00 0.00 0.00 156 nervousness 0.85 0.51 neutral 0.37 11161 optimism 0.44 0.14 0.22 894 0.00 pride 0.00 0.00 128 0.06 realization 0.25 0.03 964 relief 1.00 0.00 0.00 162 remorse 0.30 0.03 0.06 303 sadness 0.38 0.09 0.14 727 0.33 0.07 0.11 665 surprise

accuracy 0.39 34364

macro avg 0.37 0.14 0.16 34364 weighted avg 0.38 0.39 0.31 34364

Sentiment Score: 0.541846118030497

Sentiment Classification Report precision recall f1-score support

3816 ambiguous 0.42 0.23 0.30 0.52 0.52 7677 negative 0.53 neutral 0.49 0.50 0.49 11161 positive 0.61 0.70 0.65 11710

accuracy 0.54 34364 macro avg 0.51 0.49 0.49 34364 weighted avg 0.53 0.54 0.53 34364

Emotion Score: 0.35921313001978816

0.41

Emotion Classification Report:

admiration

precision recall f1-score support

0.56

0.47

2141

0.39 0.54 0.45 1178 amusement 0.30 anger 0.25 0.37 1060 annoyance 0.14 0.22 0.17 1584 0.22 approval 0.20 0.26 2240 0.25 caring 0.22 0.28 721 confusion 0.22 0.28 0.25 999 curiosity 0.33 0.36 0.34 1188 desire 0.22 0.30 0.25 389 0.18 0.17 disappointment 0.17 965 disapproval 0.26 0.25 0.25 1558 disgust 0.23 0.16 0.19 582 embarrassment 0.25 0.18 0.21 316 excitement 0.18 0.18 0.18 586 0.39 0.36 0.37 348 fear 0.73 gratitude 0.72 0.72 1360 grief 0.10 0.09 0.09 78 0.23 0.26 joy 0.29 897 0.55 0.50 0.53 1014 love nervousness 0.16 0.12 0.13 156 0.51 0.44 0.47 neutral 11161 optimism 0.34 0.18 0.24 894 0.05 0.08 pride 0.13 128 realization 0.19 0.08 0.11 964 0.22 0.07 0.10 relief 162

```
remorse 0.37 0.25 0.30 303 sadness 0.35 0.20 0.26 727 surprise 0.37 0.20 0.26 665
```

accuracy 0.36 34364 macro avg 0.29 0.27 0.27 34364 weighted avg 0.37 0.36 0.36 34364

Sentiment Score: 0.5392270981259457

Sentiment Classification Report precision recall f1-score support

ambiguous 0.36 0.48 0.41 3816 0.54 7677 negative 0.50 0.59 neutral 0.51 0.47 0.49 11161 positive 0.70 0.59 0.64 11710

accuracy 0.54 34364 macro avg 0.52 0.53 0.52 34364 weighted avg 0.55 0.54 0.54 34364

Emotion Score: 0.42055639622861135

Emotion Classification Report:

precision recall f1-score support

admiration 0.52 0.45 0.48 2141 0.50 0.59 0.54 amusement 1178 0.12 0.18 1060 anger 0.36 annoyance 0.19 0.02 0.04 1584 0.03 0.06 2240 approval 0.54 caring 0.34 0.02 0.03 721 confusion 0.52 0.02 0.05 999 curiosity 0.47 0.06 0.11 1188 desire 0.35 0.02 0.03 389 965 0.00 0.00 0.00 disappointment 0.26 0.02 0.04 disapproval 1558 disgust 0.56 0.01 0.02 582 0.00 0.00 0.00 embarrassment 316 excitement 0.57 0.01 0.01 586 fear 0.00 0.00 0.00 348 gratitude 0.78 0.76 0.77 1360 grief 0.00 0.00 0.00 78 0.42 0.16 0.23 897 joy 0.59 0.59 0.59 1014 love nervousness 0.00 0.00 0.00 156

0.92 neutral 0.38 0.54 11161 optimism 0.54 0.21 0.30 894 pride 0.00 0.00 0.00 128 realization 0.00 0.00 0.00 964 relief 0.00 0.00 0.00 162 0.45 0.36 0.40 303 remorse sadness 0.49 0.10 0.17 727 surprise 0.44 0.08 0.14 665

accuracy 0.42 34364 macro avg 0.33 0.16 0.17 34364 weighted avg 0.40 0.42 0.32 34364

Sentiment Score: 0.5601210569200326

Sentiment Classification Report precision recall f1-score support

ambiguous 0.45 0.24 0.31 3816 negative 0.58 0.44 0.50 7677 neutral 0.48 0.65 0.55 11161 positive 0.68 0.66 0.67 11710

accuracy 0.56 34364 macro avg 0.55 0.50 0.51 34364 weighted avg 0.57 0.56 0.55 34364

Best Emotion Score: 0.3832717235506721

Best Emotion Estimator: MultinomialNB(alpha=0.5)

Emotion Clasisfication Report:

precision recall f1-score support

admiration 0.46 0.52 0.49 2141 0.49 0.43 0.46 1178 amusement 0.20 0.25 1060 anger 0.35 annoyance 0.17 0.10 0.13 1584 approval 0.23 0.13 0.16 2240 caring 0.22 0.13 0.16 721 confusion 0.31 0.14 0.19 999 curiosity 0.36 0.19 0.25 1188 desire 0.36 0.12 0.18 389 disappointment 0.26 0.09 0.13 965 0.24 0.14 0.18 disapproval 1558 disgust 0.35 0.12 0.18 582 0.43 0.05 0.09 embarrassment 316

586 excitement 0.22 0.07 0.11 fear 0.37 0.12 0.18 348 0.68 0.73 0.70 1360 gratitude 0.00 0.00 0.00 78 grief 0.37 0.20 0.26 897 joy 0.57 0.48 0.52 1014 love nervousness 0.11 0.01 0.01 156 neutral 0.40 0.73 0.52 11161 0.23 0.29 894 optimism 0.38 pride 0.11 0.01 0.01 128 realization 0.18 0.07 0.10 964 relief 0.25 0.01 0.01 162 remorse 0.37 0.11 0.17 303 sadness 0.32 0.17 0.22 727 surprise 0.32 0.16 0.21 665 0.39 34364 accuracy macro avg 0.32 0.19 0.22 34364 weighted avg 0.36 0.39 0.35 34364

Best Sentiment Score: 0.5395908242774352

Best Sentiment Estimator: MultinomialNB(alpha=1)

Sentiment Classification Report precision recall f1-score support

ambiguous 0.42 0.23 0.30 3816 negative 0.53 0.52 0.52 7677 neutral 0.49 0.50 0.49 11161 0.61 0.70 0.65 positive 11710

accuracy 0.54 34364 macro avg 0.51 0.49 0.49 34364 weighted avg 0.53 0.54 0.53 34364

Best Emotion Score: 0.4057807286934899

Best Emotion Estimator: DecisionTreeClassifier(max_depth=100, min_samples_split=30)

Emotion Classfication Report:

precision recall f1-score support

admiration 0.46 0.44 0.45 2141 0.48 0.51 0.50 amusement 1178 0.29 0.21 0.24 1060 anger annoyance 0.08 0.14 0.10 1584

2240 approval 0.19 0.09 0.12 caring 0.18 0.09 0.12 721 confusion 0.13 0.17 999 0.26 0.21 1188 curiosity 0.35 0.15 desire 0.30 0.21 0.24 389 disappointment 0.15 0.06 0.08 965 disapproval 0.25 0.10 0.15 1558 disgust 0.34 0.14 0.19 582 0.27 0.08 0.13 embarrassment 316 0.14 586 excitement 0.23 0.10 fear 0.52 0.30 0.38 348 gratitude 0.78 0.73 0.75 1360 0.00 0.00 0.00 grief 78 0.36 0.20 0.25 897 joy 0.55 0.58 0.57 love 1014 0.06 0.11 nervousness 0.34 156 neutral 0.42 0.78 0.55 11161 optimism 0.45 0.23 0.30 894 pride 0.18 0.02 0.03 128 realization 0.17 0.03 0.06 964 relief 80.0 0.01 0.02 162 remorse 0.38 0.32 0.35 303 sadness 0.42 0.16 0.23 727 0.22 surprise 0.38 0.28 665 accuracy 0.41 34364 macro avg 0.32 0.21 0.24 34364 weighted avg 0.37 0.41 0.36 34364

Best Sentiment Score: 0.5154594628572621

Best Sentiment Estimator: DecisionTreeClassifier(max_depth=100, min_samples_split=5)

Sentiment Classification Report

precision recall f1-score support

ambiguous 0.37 0.26 0.31 3816 negative 0.53 0.39 0.45 7677 neutral 0.44 0.71 0.54 11161 0.73 positive 0.51 0.60 11710

accuracy 0.52 34364 macro avg 0.52 0.47 0.47 34364 weighted avg 0.55 0.52 0.52 34364

Best Emotion Score: 0.39962609113987346

Emotion Classification Report:

precision recall f1-score support

admiration 0.41 0.48 0.44 2141 amusement 0.50 0.53 0.52 1178 0.35 0.04 0.07 1060 anger 0.11 0.00 0.01 1584 annoyance 0.00 0.00 approval 0.00 2240 caring 0.00 0.00 0.00 721 confusion 0.38 0.06 0.10 999 curiosity 0.44 0.09 0.14 1188 desire 0.00 0.00 0.00 389 disappointment 0.11 0.00 0.00 965 disapproval 0.11 0.00 0.00 1558 disgust 0.00 0.00 0.00 582 embarrassment 0.00 0.00 0.00 316 excitement 0.00 0.00 0.00 586 0.00 fear 0.00 0.00 348 gratitude 0.70 0.77 0.73 1360 grief 0.00 0.00 0.00 78 joy 0.22 0.11 0.14 897 0.56 0.59 0.58 1014 love 0.00 0.00 0.00 156 nervousness 0.38 0.92 0.54 neutral 11161 0.00 0.00 894 optimism 0.00 pride 0.00 0.00 0.00 128 0.00 964 realization 0.00 0.00 relief 0.00 0.00 0.00 162 0.02 0.71 0.03 303 remorse 0.34 0.13 0.19 727 sadness surprise 0.36 0.01 0.01 665 accuracy 0.41 34364 macro avg 0.20 0.13 0.13 34364 weighted avg 0.29 0.41 0.29 34364

Best Sentiment Score: 0.5625072439484619

Best Sentiment Estimator: MLPClassifier(activation='tanh', hidden_layer_sizes=(5, 10), max_iter=2)

Sentiment Classification Report

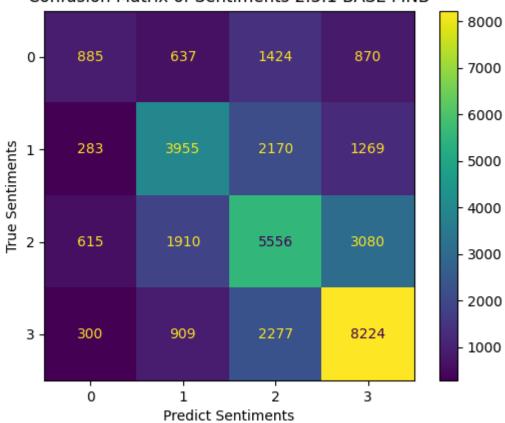
precision recall f1-score support

ambiguous 0.45 0.23 0.31 3816 negative 0.55 0.54 0.54 7677 neutral 0.50 0.56 0.53 11161 positive 0.66 0.69 0.68 11710

accuracy 0.56 34364 macro avg 0.54 0.51 0.51 34364 weighted avg 0.56 0.56 0.56 34364

									Со	nfus	ion I	Иatr	ix o	f Em	otic	ns 2	.3.1	L BA	SE M	NB									
0	966	10			40			8								47		18	48		958	11							
1	48	345		18	18													11			703								
2	11		130	69							12										792								
3	26	16	34	98	27			12			32					12					1278							11	
4	- 114	14		27	199	10					37					10		8	11		1759	11							
5	15				14	44										20					581	15							
6	10			15	17	1	63	26			14										828								
7	- 21				20		13	124		1	10			1					2		954								
8									14					1							321	21							
9		1		38	23	4				44	19			2							758			2		1	19		
10		17	12	38	52	3	11	4	0	2	126	1	0	1	1	7	0	1	1		1250		0	3	0	0	3	2	
11		4	30	26	13	0	2	2	0	3	9	33	1	0	0	2	0	1	1	0	440	4	0	1	0	1	3	1	
12		6	3	9	10	0			0	2	3	3	5	0	0	1	0	0		0	260		0		0	2	3	0	
13 14		12	4	2	9	0	2	4		4	3	0		20	1 15	10	0	47	8	0	383	3	0	2	0	0	0	8	
14 15		8	0		14		0		0	,	3	5	0	0		912	0	14	5	0	308	4	0	0	0				
16		1		0	1	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	65		0	0	0	0		0	
17		61	0		13			0	0			0	0	5	0	32	0	105	29	0	573	4	0		0	0	0	1	
18		3	2	3	11	0	0	2	1	1	5	0	0	1	0	6	0	5	346	0	544	2	0	1	0	0	2	1	
19	2	0	0	3	4	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	138	0	0	0	0	0	3	1	
20	306	109	68	156	256	41	52	76	12	29	139	22		21	11	91		40	73		9471	62		57			27	34	
21	36				32	10										15					647	127							
22	19																				94								
23	17				24	1					16										812			32					
24	13															12					128								
25	- 2															16					233					10	19		
26	- 12			10																	585						62		
27	35				12			11													516							44	
	Ó	1	2	3	4	5	6	7	8	9	10	11	12	13 edict	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

Confusion Matrix of Sentiments 2.3.1 BASE MNB



Co	ntu	sion	Mat	rıx	of	Em	otio	ons	2.3.	2 B	ASE	DT
								-4				

											,,,,,		Mac	,.	o	HOLI		٠.٠.	2 07										
	0 -	1206	52	20	45	119	30	20	20	11		12			54		54		65	80		267	25						17
	1 ·	68	636	16	47	51		20	14	11		14			20				54			150							10
	2 -	18	27	396	170	37	13	15	14		21	51	26	8								216							8
	3 -	51	68	200	349	107	28		35	13	51	100		13	14		17		11	14		385			11			12	11
	4 -	208	55	47	128	588	76	40	32	38	37	76	21	10	22	11	11		35	37		661	37		24			10	15
	5 -	29		22	45	70	204	10	11	12	16	19					17		18	12	10	164	17			1		10	1
	6	20	21	34	74			279	127		19	41										262							6
	7 -	38	23	27	54	41	11	183	422	13	12	17			14							275							12
	8 -	14	10		14	38	14		8	117		12			10							83	25						2
	9 -	29	16	49	130	65	21	23	10	11	171	67	16									233	11		19			40	8
	10 -	44	38	85	170	122	32	46	28	11	73	393	18	13		10						397				1		17	10
	11 -	13	20	87	90	28		13			35	36	95	10		11						104							7
	12	6	18	19	50	21		11			14	17		58				1				59							2
label	13 -	76	31	13	17	49			33	12					108		19		33	17		121							22
rue labe	14 -	9		15	25	14	12				15	11	14			125						57							4
	15 -	113	13		24	34	17		11	10	8	10			18		974		19			49	14				14		0
	16	5	1																			15						8	0
	17 -	96	135		24	63	17			14	12						42		207	55		121							4
	18 -	149	18		17	50	25	11		16		15			21				47	509		89							3
	19	4			15	12	11				16					10					18	32							0
	20 -	531	321	421	722	1052	271	417	377	145	278	480	124	52	164	91	84	18	151	118	33	4869	115	14	135		23	83	65
	21 -	62	17	14	51	113	47	18	12	56	12	27			16		19		13	11		213	165						3
	22 -	21				15	1															38							0
	23 -	39	29	24	65	139	15	33	18	10	37	54			10							329			74	1		13	14
	24 -	18				23											10		8			33				11			0
	25 -	4				11	12	11			23	11					21					44					76	32	1
	26 -	15	12	27	59	31	30	12			83	27	10									173					34	147	5
	27 -	54	31	21	41	41		24	48		26	19			26				8			149				1			133
		ò	i	2	3	4	5	6	7	8	9	10	11	12 Pr	13 edicte	14 ed la	15 bel	16	17	18	19	20	21	22	23	24	25	26	27

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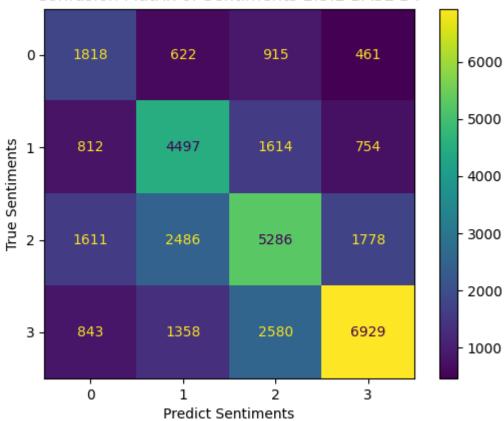
- 3000

- 2000

- 1000

0

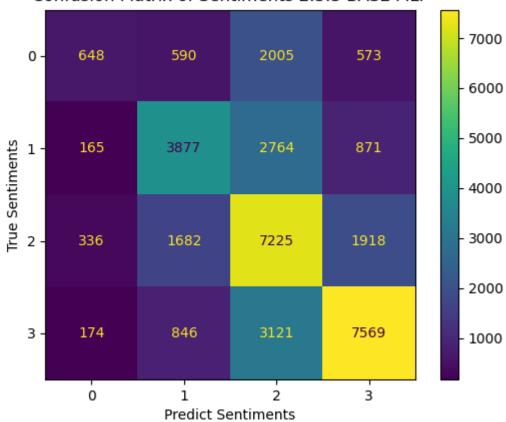
Confusion Matrix of Sentiments 2.3.2 BASE DT



									CO	mus	,1011	Mac	11111		IOCIC	J113 Z		ט טר	JL 11											
(-110	2 23				1		10								29		34	68		837	12								
1	- 42	714														10			13		377									
2	- 14	16	85	17				14											8		876									
3	- 35	48	35	21	10			18			25					15			14		1338									
4	- 153	34			84	1					21					10		11	31		1850	21								
5	- 29					14										14		11			585	23				10				
6	- 13	19					38	43			23										836									
7	- 25	19						135													969									
8	- 16					1			19												306	17								
9	- 23										13										865	8					14			
10	- 32	29			14	1					66								21		1338	8								
11	- 5	12	24	10																	504									
12	- 5	11																			269									
13 13	- 83	11																54	20		389									
e 14	- 5	10																			316									
	- 102	14														1026		29	10		144	16				14				
16	- 3	1																			64									
17	- 89	127				1										27		174	56		403									
18	- 61																		632		296									
19	- 1	1																			143									
20	- 293	236	46	15	31		18	95			72					63		44	128		9991	72				14	16	11		
21	- 59	12																	10		530	230								
22	- 21																				89									
23	- 21	17									16								11		856									
24	- 13	1														15					119									
25	- 5					1															141					127				
26	- 14	15																			553					46	74			
27	- 45	12						21													505							49		
	Ó	1	2	3	4	5	6	7	8	9	10	11		13 edicte	14 ed la		16	17	18	19	20	21	22	23	24	25	26	27	•	

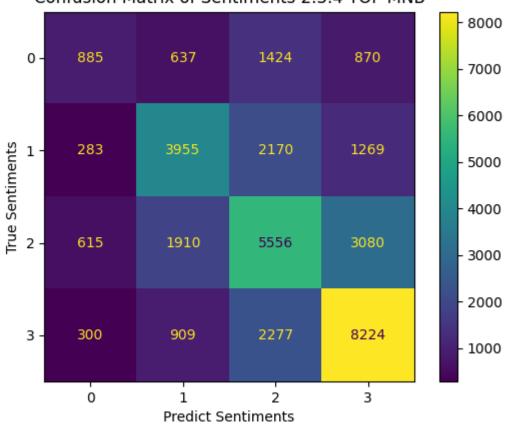
Confusion Matrix of Emotions 2.3.3 BASE MLP

Confusion Matrix of Sentiments 2.3.3 BASE MLP



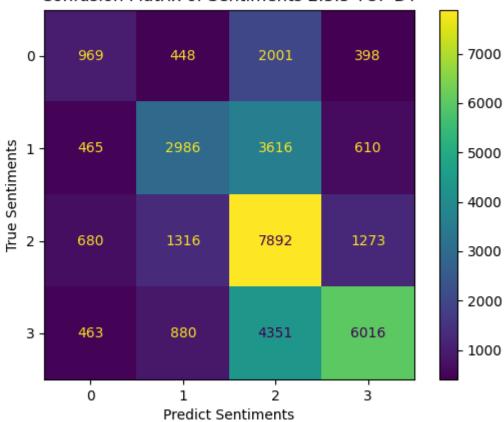
8000

Confusion Matrix of Sentiments 2.3.4 TOP MNB



			_						С	onfu	ısior	Ма	trix	of E	mot	ions	2.3	.5 T	OP D	Т		_	_		_			
93	6 24	4 1	LO	28	60	11	10	10						35		36		42	89		744	19						37
- 51	60	2 1	LO	29	18		11				11			10				36	14		327							12
- 18	15	5 2	21	98	19			11		12	19	16							10		573							7
- 33	38	3 1	00	131	48	12	22	16	8	14	37	20				14		10	18		1016				1			8
- 12:	1 30)]	L9	47	198	32	22	15	14	15	40			11			1	23	46		1529	20		12				7
- 22	10)	7	18	30	61					15					14		12	12		446	14						1
- 14	2:	1 1	LO	32	20		132	45		12	25								10		631							7
- 29	22	2	8	20	32		39	181			18								8		770							10
- 13	8		2		14				81												206	26						1
- 12	9	2	21	47	28	13	13			55	35	14							8		613	13		14			34	7
- 29	23	3 2	29	51	50		26	16		20	163	16							10		1045	10				11		5
- 10	10) 5	59	45	11					12	14	80									298							5
- 6	10)	8	19	11					8			26								191							5
56	10)]	LO		10	1		16						57		20		25	17		300				1			33
	6		6	10											104						161							1
79	11		4	14	21	12								12		993		15			122	12				22		2
3	1																				45							0
76	- 11	3	9	10	25				10					33		25		173	55		312							7
95	13	3	4		21	10												24	574		217				1			1
	0		2																	10	102							0
27	4 20	9 1	69	237	289	72	132	130	59	79	167	36	19	36	33	61		67	128		8690	81		57		22	39	63
36	11		9		40	33	10		29		12			10		21		8			433	202						3
17	5		2														1				81							0
22	16	5 1	11	34	45					10	22										681			34				15
11	. 0		2		12											14					94							0
	4		5			10															102					96	26	0
	10)	7	13	12					35	19										395					40	115	8
36	17	7 1	L2	20	7	1	7	13	2	6	10	2	0	13	4	5	0	3	3	0	350	3	1	5	0	0	0	145
ò	1		2	3	4	5	6	7	8	9	10	11	12 Pre	13 edict	14 ed la	15 bel	16	17	18	19	20	21	22	23	24	25	26	27

Confusion Matrix of Sentiments 2.3.5 TOP DT



10000

									Co	nfus	sion	Mat	rix o	f Em	otic	ns 2	.3.6	БВА	SE M	LP								
0 -	1048	15														40			80		918							12
1 -	61	580														12					504							
2 -	12		69	46								20									872							
3 -	24	24	31	25							11	19				15			14		1390							11
4 -	128	20			43						15					22			33		1938	15						
5 -	21										14					38			12		589	13						
6 -		17		10			19				25										898							
7 -	19	15		10							46								10		1062							
8 -	19															21					310	13						
9 -	22			13							11	15									851						14	
10 -	15	20		15							41	10							22		1398							
11 -			21	18								65									444							
12 -																					262					10		1
13 - 14 -	148																	8	17		373							16
14 -		10										14									290							13
15 -	101	17														1040		10	10		138	20				18		0
16 -																					57							1
17 -	217	101														45		22	61		435							2
18 -	131				18														599		250							C
19 -																					135							C
20 -	292	169	46	41	18						83	39				78		14	133		e+04	48				26	22	2
21 -	43															52			11		621	141						2
22 -	24																				88							C
23 -	23	14									12								12		868							6
24 -	11	1														18					126							C
25 -																13					117					143		C
26 -	13	11									16					13			8		512					48	89	3
27 -	45	10										11									508							76
	Ó	1	2	3	4	5	6	7	8	9	10	11	12	13 edicte	14	15 bol	16	17	18	19	20	21	22	23	24	25	26	2

Confusion Matrix of Sentiments 2.3.6 BASE MLP

